Oakfield Wind Project // Oakfield, Maine
Evergreen Wind Power II, LLC, applicant
Site Location and NRPA

- Appeal of Brian Raynes
- Appeal of Daniel Koerschner
- Appeal of Martha A. Powers Trust
  Submitted by Rufus Brown

February 22, 2010

Brian Raynes
51 Nelson Road
Oakfield, Me. 04763
braynes@fairpoint.net

Board Chair Susan Lessard
Board of Environmental Protection
c/o Terry Hanson
17 State House Station
Augusta, Me. 04333

Re: Appeal in the Matter of Oakfield Wind Project, DEP Orders L-24572-24-A-N & L-24572-TF-B-N

Dear Chair Lessard:

My name is Brian Raynes. I am an aggrieved party in the matter of the Oakfield Wind Project for the reasons following: I own two separate parcels of land, totaling more than 200 acres, both abutting land secured by the applicant for the proposed project. My parcels include two year round residences, a cottage, and an additional fully permitted building site, permit for which has not expired, all in close proximity to this proposed project. Furthermore, my permitted building site has been identified in the application documents for this project as the receiver location "R-4", this established protected location being a distance of 1990 feet from the nearest turbine, according to application documents. I have consistently raised objections to the DEP with regard to this application and its subsequent approval for the entire review period.

I hereby join in the appeal of the DEP orders referenced. For that purpose, I adopt and incorporate by reference the Appeal of Final Order by the Martha A. Powers Trust, dated February 22, 2010, and join in the request in that filing for a public hearing on the appeal.

For the purpose of this matter, correspondence should be sent to the following: Brian Raynes, 53 Main Street, Houlton, Me., 04730; or, sent electronically to: braynes@fairpoint.net .

Respectfully submitted,

Brian Raynes

cc: David P. Littell, Commissioner
Juliet Browne, Esq.
Rufus E. Brown, Esq

19 February 2010

Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

Re: Objection to the Oakfield Wind Project

To Whom It May Concern:

I, Lieutenant Commander Daniel Koerschner USN Retired, as an owner of a shorefront property on Spaulding Lake in Oakfield (Map 23A Lot 10) object to the permit application for Evergreen Wind LLC for construction of the wind project in Oakfield. I object because I am not being compensated for the resulting loss of property value due to this project. A lakefront fishing cabin with a pristine view of the Oakfield Hills is worth more than a lakefront fishing cabin with that same view with 270' tall industrial wind turbines on top of the Hills. Would the U.S. government ever put wind turbines on top of Mount Rushmore or in Yellowstone Park? Of course not, since they would detract from these national treasures. Some entity is going to make a profit on these wind turbines and they are doing so partly at my expense. I will be happy to argue my case before a judge.

Sincerely,

Daniel Koerschner

LCDR Daniel Koerschner USNR

LCDR Daniel Koerschner
16 Thompson Street
Annapolis, MD 21401

BROWN & BURKE
ATTORNEYS AT LAW
85 EXCHANGE STREET - P. O. BOX 7530
PORTLAND, MAINE 04112
www.brownburkelaw.com

TELEPHONE (207) 775-0265
FACSIMILE (207) 775-0266

RUFUS E. BROWN
M. THOMASINE BURKE

February 22, 2010

**Via E-Mail and U.S. Mail**

Susan Lessard, Chair
Board of Environmental Protection
c/o Terry Hanson
17 State House Station
Augusta, Me. 04333

Re: *Appeal of Final Order in the Oakfield Wind Project L-24572-24-A-N & L-24572-*TF-B-N by *the Martha A. Powers Trust*

Dear Gentlemen:

I am e-mailing the Appeal of the Martha A. Powers Trust from the Final Order referenced above, a copy of Trust Exhibit 31, and the Proposed Testimony of Richard James and Michael Nissenbaum, M.D.. Hard copies will be sent by mail today.

Sincerely yours,

Rufus E. Brown

REB/encl.

David P. Littell, Commissioner, via e-mail and U.S. Mail
Juliet Brown, Esq. e-mail and U.S. Mail
Philip Powers

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STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

In Re:

| | | |
|---|---|---|
| EVERGREEN WIND POWER II, LLC | ) | |
| Oakfield Aroostook County | ) | **APPEAL OF FINAL ORDER** |
| OAKFIELD WIND PROJECT | ) | **BY THE MARTHA A. POWERS TRUST** |
| L-24572-24-A-N (approval) | ) | |
| L-24572-TF-B-N (approval) | ) | |

Pursuant to 38 M.R.S.A. Sections 344 and 341.D.4 and Department of Environmental Protection ("DEP") Rule 2, Section 24.B(1), the Martha A. Powers Trust (the "Trust") appeals to the Board of Environmental Protection (the "BEP") from the Final Order of the DEP dated January 21, 2010, approving the application of Evergreen Wind Power II, LLC (the "Applicant") for the Oakfield Wind Project (the "Project"). The Trust further requests a public hearing on its appeal on the grounds that there is credible conflicting medical and technical information regarding the licensing criterion and it is likely that a public hearing will assist the BEP in understanding the evidence. See Rule 2, Section 7.B.

## I. AGGRIEVED PARTY STATUS

The Trust owns in excess of 10,000 acres of property including the northern half of Township 4 Range 3, WELS, as well as property in Oakfield and Island Falls, Maine. The Trust property encompasses approximately two thirds of the lakefront of Pleasant Lake, and approximately four fifths of the lakefront of Skitacook Lake. The Trust's property abuts the property to be developed by the Applicant for the Project and thus it is directly affected by it and as such it is an aggrieved party. The Trust also actively participated before the DEP in the permitting process raising the objections that are the subject of this appeal

## II. FINDINGS AND CONCLUSIONS OBJECTED TO

The Trust objects to the DEP Final Order's Findings and Conclusions on:

A. Financial Capacity (Section 3), Final Order at 5.

B. Noise (Section 5), Final Order at 5-14.

C. Scenic Character (Section 6), Final Order at 14-20.

D. Decommissioning (Section 24), Final Order at 38-55.

E. Adverse Affect on Property Values.

The Trust also appeals the findings and conclusions related to these subjects, including but not limited to Conclusion A, Final Order at 42, pursuant to 38 M.R.S.A. §480-A and Section 4021 of the Federal Water Pollution Control Act, and Conclusions A and B, Final Order at 42-43, pursuant to 38 M.R.S.A. §481, et seq.

## III. BASIS FOR THE APPEAL

A. Objections to the Final Order as to Financial Capacity.

The Final Order finds that the Applicant has "demonstrated adequate financial capacity to comply with Department standards provided that the applicant submits final evidence of financial capacity prior to the start of construction as referenced above." Final Order at 5. In normal circumstances, this finding would not be objectionable. However, in this case there is a serious question as whether the Applicant is a going concern. See argument under Decommissioning at 23-25 below. Given the precarious financial position of the Applicant, as stated on the record, the DEP should have required a showing of *current* financial capacity prior to issuing the order approving the application.

B. Objections to the Final Order as to Noise:

The Applicant represented to the DEP that the Project will comply with quiet area standards of 55 dba for daytime and 45 dba for nighttime noise at the project boundaries and

202 protected locations as required by DEP's Chapter 375 §10.C.1.v. with hardly any cushion, see Table 3 at pg. 10 of the *Sound Level Assessment* prepared by Resource Systems Engineering ("RSE"), except for a 3 dba deviation allowance for accuracy uncertainties of the sound calculations and a 2 dba deviation for uncertainties concerning sound level estimates. Moreover, there are 10 locations where there were predictions that the sound limits will be exceeded, for which easements or a lease arrangement was obtained to exempt such locations from the sound limits. *Sound Level Assessment* at 10, Table 4. The Trust appeals the DEP's acceptance of RSE's *Sound Level Assessment* 's predictions, the findings of the Final Order disregarding the issue of adverse health effects from the operation of the Project and the DEP's reliance on Noise Easements.

1. Flaws in Prediction Modeling.

The Trust raised several issues concerning flaws in the prediction modeling performed by RSE in its *Sound Level Assessment* described below. The errors in the modeling that should have caused DEP to reject the application for the Project are the following:

a. *The Limitations of the Models Used to Measure Noise.*

The Final Order explains that the *Sound Level Assessment's* prediction model for sound propagation used Cadna/A (operating in ISO 9613-2, *Attenuation of Sound During Propagation Outdoors,* mode). Final Order at 6-7. The problem with this prediction model is that ISO 9613-2 (Administrative Record *Trust Exhibit 3*[1]) was not designed for wind turbines, and it was not designed for sound sources at a height of a ridgeline, such as that proposed for the Project. These problems with using Cadna/A (operating in ISO 9613-2) were acknowledged by the DEP's own consultant, Warren Brown of EnRad Consulting, in an internal conference call last March on the

subject of noise in wind power applications pending before the DEP. In the *Notes of March 5, 2009 DEP Conference Call* between Warren Brown, Dora Mills, Maine Center for Disease Control ("MCDC"), and others (*Trust Exhibit 4*), Warren Brown stated that he "has issues with [the] model being used. Currently it's based on industrial noise, not wind power noise. ***We haven't been able to determine whether this model is accurate for wind turbines.***" [Emphasis added.] Later in the Notes he states that RSE predicts compliance with 45 dba nighttime noise, "but [he] still [has] questions regarding the model – [it is] based on industrial noise." He states "wind turbine noise needs more investigation. 1. Need to be able to predict stable atmospheric conditions .... 2. Set up protocol for acoustic measurements with DEP staff member on site. ... Questions RSE's assumption – due to model. ... There is a period when turbines are loud. ***Not sure how to predict this yet. Need to figure out stable atmospheric conditions.***" [Emphasis added.]

The concerns expressed by Warren Brown in the conference call are reflected in credible scientific literature on the subject. For example, Frank H. Brittain & Marlund E. Hale, in their article, "Some Limitations of Ray-Tracing Software for Predicting Community Noise from Industrial Facilities," NOISE-CON, Dearborn, Michigan (July 28-30, 2008) (*Trust Exhibit 5*), state that ISO 9613 estimates the accuracy of A-weighted sound propagation noise for distances only up to 1 km, but it is routinely used for distances greater than that. A study by Kenneth Kaliski & Edward Duncan, "Propagation Modeling Parameters for Wind Turbines, "NOISE-CON, Reno, Nevada (October 22-24, 2007) (*Trust Exhibit 6*), states that modeling of wind turbines in flat and relatively porous terrain may yield results that underestimate actual sound levels when using standard ISO 9613-2 algorithms, and that "wind turbines often operate with

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[1] The Trust Exhibits are labeled and are contained in the Administrative Record before the DEP.

wind speeds that are higher than the ISO 9613-2 methodology recommends. The combination of higher wind speeds and high noise source may result in greater downward refraction."

The effect of "atmospheric stability" on the accuracy of sound assessments using the ISO 9613 algorithms that Warren Brown referred to is also the focus of a study by Clifford Schneider, "Accuracy of Model Predictions and the Effects of Atmospheric Stability on Wind Turbine Noise at Maple Ridge Wind Power Facility, Lowville, NY- 2007". *Trust Exhibit 7.* Atmospheric stability occurs at night when the land cools and vertical air movement disappears, and where wind can be calm on the ground but continue to blow at hub-height. When this occurs, Schneider explains, "[w]ind turbine sounds are more noticeable, since there is little masking of background noise, and more importantly, because atmospheric stability can amplify noise levels significantly." Pg. 6. Schneider states that most wind assessments never mention atmospheric stability. Pg. 7. Schneider concludes that the developer's predicted noise levels using ISO 9613 were too low when compared against noise levels measured during the actual operation of the wind project. "Further the accuracy of the ISO 9613 protocol is a +/- 3 dBA, without considering reflected sounds, and it is not recommended for source levels higher than 30m" per ISO 9613 itself. Pg. 22. The same concern about atmospheric stability is expressed by Charles Ebbing in his article dated July 16, 2009, "Some Limitations and Errors in Current Turbine Noise Models" (July 2009)." *Trust Exhibit 8. See also*, Kaliski & Duncan, *supra*, "Propagation Modeling Parameters for Wind Turbines" (*Trust Exhibit 6*) at 6 (when noise comes from elevated turbines, i.e., from ridge mounted turbines, "sound waves may not significantly interact with the ground over distance.").

Given the limitations of the modeling, originally expressed repeatedly by Warren Brown of EnRad in a context where he could give candid expression of his concerns, and given the

support in the literature of these limitations, RSE's sound predictions at protective locations as just barely meeting minimum sound level limitations should not have been accepted by the DEP. If allowances were made by the DEP for the limitations of the sound propagation models by assuming that the noise generated by the turbines would carry further than predicted by those models, the nighttime noise limits specified by DEP Rule 375 would be exceeded for the Oakfield Project.

b. *The Failure to Use Line Source Calculations.*

In RSE's *Sound Level Assessment* wind turbines were treated as "point sources", *see* id. at 8, without calculations based on "line sources." The *Sound Level Assessment* states:

> Sound propagation in air can be compared to ripples on the surface of a pond. The ripples spread out uniformly in all directions of the pond surface decreasing in amplitude as they move further from the source. For every doubling of distance from a stationary hemispherical noise source, the sound level drops by 6 dBA.

*Sound Level Assessment*, at 2. The DEP accepted the Applicant's use of point source based on the conclusions of its consultant, Warren Brown of EnRad, that the Applicant's prediction modeling was reasonable and technically correct according to engineering practices. Final Order at 10-14.

The Trust appeals these findings. The DEP should have required modeling predictions using "line source" calculations. Line source calculations measure sound propagation perpendicular to a row (line) of wind turbines, giving effect to the combined noise from the line that radiates in a cylindrical (directed) manner as opposed to a spherical (like a ripple in a pond) manner. The decay rate of a line source is *3 dB* for every doubling of distance, one half of the decay rate of a point source of *6 dBA* per doubling. If line source calculations were used, the

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DEP nighttime noise limits of 45 dBA would be exceeded for protected locations in this case. *See*, the NASA study (*Trust Exhibit 9*) at 27 and C.E. Ebbing, "Applied Acoustics Handbook" (*Trust Exhibit 10*)) at 2-8 through 2-10, Kaliski & Duncan, *supra*, "Propagation Modeling" (*Trust Exhibit 6)* at 6 and Mats Abon, "Sound Propagation From Wind Turbines" (*Trust Exhibit 11*) at 10. There is clear scientific consensus on this issue. The NASA studies show that the line source and point source produce similar results only at distances that exceed the length of the line, *see Trust Exhibit 9* at pg. 27. Many of the homes at Oakfield have a direct sight line to turbines. If the RSE *Sound Level Assessment* had used line source calculations, the DEP noise limits would be exceeded.

c. *The Failure to Apply the SDR 5% Penalty.*

The DEP regulations on sound level limits, Chapter 375, Section 10.D. 19, define "Short Term Duration Repetitive Sounds" ("SDR") as a "sequence of repetitive sounds which occur more than once within an hour, each clearly discernible as an event and causing an increase in the sound level of at least 6 dBA on the fast meter response above the sound level observed immediately before and after the event, each typically less than 10 seconds in duration, and which are inherent to the process or operation of the development and are foreseeable." Section 10.C.1.d imposes a 5 dBA penalty when SDR is present for purposes of measuring sound level limits.

The Applicant's *Sound Level Assessment* did not take into account SDR. Id. at 11. The *Assessment* asserts at 11 that wind turbines only have increased sound levels of 2-4 dBA, rendering the 5 dBA penalty inapplicable and the DEP accepted these assertions. Final Order a 11-12. The Trust appeals the Final Order on these grounds. The Applicant's assertion about the low level of repetitive sounds is based on a 1997 version of a British wind siting standard ETSU-

R-97 that is now over 10 years old and is under critical attack by independent acoustical consultants in the UK and that many current studies show SDR sounds from wind turbines commonly in the range of 5-6 dBA and can frequently exceed 10-15 dBA . Ebbing Acoustics, "Some Limitations and Errors," *supra, Trust Exhibit 8* at 3-4 (explaining how the interaction of coherent sound waves from multiple turbines working in synch can increase amplitude modulation by 12 dBA when only 4 turbines are involved), whereas in Oakfield there are many more turbines within line of sight to several protected locations.

The Final Order arbitrarily disregarded these concerns on three grounds. First, DEP relies on post-construction compliance monitoring in the Stetson Wind Project as validating RSE's modeling in that project as support that the use of the same modeling for Oakfield is presumptively valid. Final Order at 14. This is an insufficient response to the Trust's modeling objections. As explained in the letter from E-Coustic Solutions dated January 7, 2010, *Trust Exhibit 27* in the Administrative file, the compliance report for Stetson Wind was flawed and provides no support for the claim that it validates the noise modeling of RSE, the entity that prepared the *Sound Level Assessment* for the Oakfield Wind Project. Among the reasons that it is flawed are the following:

(i) It is not a report by an independent expert; the modeler's are checking their own model;

(ii) There was no testing protocol established in advance of the field work to guide the field work or to measure the legitimacy of the findings of the field work;

(iii) The field testing took place at different sites that do not correspond to the pre-construction modeling sites;

(iv) Only one field testing site was downwind of the turbines, even though downwind represents the condition most likely to result in the highest sound levels;

(v) In contrast to the Mars Hill four quarter post- construction noise study, the testing for Stetson took place over a period of less than 24 hours;

(vi) The Stetson Report did not field test under the same conditions assumed in the pre-construction modeling;

(vii) There are numerous anomalies in the field testing, casting serious doubt about the Report, including results showing an increase in sound levels at a time when wind turbines were declining in power output and results showing variations in sound levels where constant sound power was presumed;

(viii) The modeling purported to be validated did not use line source sound propagation although the turbines are arranged in a line along the ridge top; and

(ix) There was no test data reported or filed addressing concerns about low frequency sound.

The second rationale for the DEP's acceptance of the Applicant's modeling is that any uncertainties about modeling can be addressed after the Project is built and begins operations through post-construction compliance monitoring. This is an arbitrary and capricious basis for approval of the application. If there are serious problems with sound modeling, as there were at Mars Hill by the same sound expert (RSE) that has modeled the Oakfield Project, the sound study should not be accepted. The DEP responded to the problem in Mars Hill by granting variances for noise experienced in excess of that modeled, at the expense of the health of residents in Mars Hill. The DEP has vowed not to do that again, but is on a course with the Final Order of doing exactly the same thing. The reality is that after the Project is built there are limited practical means to remedy any non-compliance with the noise regulations short of rendering the Project uneconomic.

The third ground for disregarding the Trust's objections to modeling is DEP's reliance on its consultant's summary and conclusory review of the Trust's technical objections. To the extent

that the Final Order Draft Order relied on the EnRad letter to the DEP dated December 18, 2009, titled "Response to Powers Trust Objection", it is flawed for the reasons to be explained in a report by the Trust's expert, E-Coustic Solutions, submitted into the Administrative Record as *Trust Exhibit 28*.

2. Failure to Consider the Health Effects of Nighttime Noise.

The preamble to DEP's noise regulations, Chapter 375.10 states:

> The Board recognizes that the construction, operation and maintenance of developments may cause excessive noise that could degrade the health and welfare of nearby neighbors. It is the intent of the Board to require adequate provision for the control of excessive noise ...

*The Maine State Planning Officer Technical Assistance Bulletin # 4 (Trust Exhibit 12)* states a similar concern, warning that "[p]rolonged noise exposure is a serious threat to human health, especially when resulting in sleep interruption and especially during the nighttime hours." The DEP has a duty, acting pursuant to 38 M.R.S.A. §484.4, as recognized by Chapter 375.10, to protect the people of the State of Maine from the adverse health effects of a wind power project, even if the applicant meets the specific quiet area standards of the Regulations.

The Applicant's *Sound Level Assessment* fails to account at all for the potential health effects of the Project Wind Project. In part this is explainable from RSE's use of flawed noise propagation modeling, as explained above. *See also*, George Kamperman & Richard James, "The 'How To' Guide to Siting Wind Turbines To Prevent Health Risks From Sound" (*Trust Exhibit 13*) at 1 ( "The errors in the predicted sound levels can easily result in inadequate setback distances thus exposing the property owner to noise pollution and potential health risks.") In part it is due to the refusal of the wind power industry to take the issue of health effects from wind

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turbine noise seriously.

The health concerns raised by the Trust, arbitrarily ignored by the DEP in the Final Order, are the following: The issue of the adverse health effects from wind turbines is a serious and emerging issue. Dr. Robert Nissenbaum has been examining the adverse health effects of the Mars Hill Project in a study summarized in his Affidavit (*Trust Exhibit 14*, ¶3 and Exhibit B thereto) ("Dr. Nissenbaum Aff."). He opines, based on his experience with Mars Hill: "It is my opinion that the BEP should hold a public hearing to examine the potential health effects of the Record Hill Wind Project given the potential seriousness of the health issues, and to ensure that an appropriately corrected modeling process (compared to the flawed model that was in fact used) is implemented to best predict the sound emissions that can be expected from the Record Hill Wind Project." Dr. Nissenbaum Aff. at ¶4. He adds that "credible evidence of negative health effects from Industrial Wind Projects [is available] from Canada (in the form of the health/symptom survey from Ontario, Canada) by Robert McMurtry, M.D., [his] own preliminary but significant findings from Mars Hill, Maine and a draft of a potential landmark book 'Wind Turbine Syndrome' by Nina Pierpont, M.D. [*Trust Exhibit 15*] Dr. Pierpont is an accomplished and well respected physician who is making significant contributions to the body of knowledge on the health impacts of wind turbines. Her basic premise about the existence of wind power syndrome has been well received by some of the foremost experts in the field of Otorhinolaryngology and Otology. [He] furthermore agree[s] with her statements and recommendations at pages 11-12 of an excerpt of her Draft Report", namely minimum protective distances of up to 1 to 3.5 km (for mountainous terrains). Dr. Nissenbaum Aff. at ¶9.

Drawing on his expertise in studying Mars Hill, Dr. Nissenbaum predicts that the residents in the nine (9) dwellings identified in the RSE *Sound Assessments* as R-1 through R-9

will experience the same or similar adverse health effects, including and especially sleep disturbance, in the same proportions as the affected residents living within 3500 feet of the turbine installation at Mars Hill. Affidavit of Michael Nissenbaum, M.D., *Trust Exhibit 26*, ¶6.

Recently, on September 12, 2009, the Maine Medical Association ("MMA") adopted a resolution recognizing that "assessing the potential health impact of wind turbines has been difficult to measure but if present would be of significant concern" and urging the DEP to adopt procedures that "reflect scientific evidence regarding potential health effects, and to further explore such potential health effects" and to "avoid [ ] unreasonable noise ... with development setbacks...." Dr. Nissenbaum Aff. at Exhibit D. This resolution passed, notwithstanding the previous objections of Dr. Dora Mills in a subcommittee considering a similar resolution. According to Dr. Nissenbaum, the "Maine CDC Director's refusal to recognize any potential negative health effects of wind power projects, and her public statements urging the rapid establishment of Industrial Wind Projects in Maine seem to be at odds with the caution expressed by the wider medical community, as indicated by the attached Maine Medical Association resolution. Nissenbaum Aff. at ¶11.[2]

The need to take a more cautious approach to wind turbine siting because of the potential health effects is also supported by World Health Organization ("WHO") Guideline on nighttime noise. *WHO Night Guideline for Europe* (2009). The Executive Summary and the section on Sleep Disturbance (Section 2) of the 2009 WHO report is attached hereto as *Trust Exhibit 22* and

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[2] The Maine CDC did not investigate the cluster of health complaints in Mars Hill for potential significance. Given that Mars Hill potentially represents a new negative health phenomenon resulting from the interaction of a ridge line source of Industrial Wind Turbines sited too close to human dwellings after faulty pre installation sound modeling, this represents a failure of the Maine CDC to comply with its mandate to investigate newly arising health issues to better understand them and propose solutions for mitigation and future prevention. As such, any statements emanating from the Maine CDC on this subject must be viewed as being based on incomplete information, at this point in time. Dr. Nissenbaum Aff. ¶3.

the full report can be found at www.euro.who.int/Document/E92845.pdf. The WHO report explains that it was prepared by "[o]utstanding scientists" and that the report was "peer reviewed and discussed to reach a consensus among experts and stakeholders." *Trust Exhibit 22* at VII. The 2009 WHO report states that "[t]here is plenty of evidence that sleep is a biological necessity, and disturbed sleep is associated with a number of health problems." *Trust Exhibit 22* at XI, XII. Also, it concludes that "[w]hile noise induced sleep disturbance is viewed as a health problem in itself (environmental insomnia), it also leads to further consequences for health and well-being." *Trust Exhibit* 22 at XII. In Section 2 of the 2009 WHO report, the consequences of sleep deprivation are summarized. *Trust Exhibit 22* at 23 (Table 2.4). Some of the short term consequences are sleepiness, mood changes, irritability and nervousness, impairment of function, increased metabolic rate and thyroid activity, immune function impairment, and some of the long term consequences are depression/mania, violence, difficulty learning new skills, increased sensitivity to pain and susceptibility to viral illnesses. Based on the extensive research done, the 2009 WHO report concludes that sleep disturbance from noise occurs between 30 to 40 dB. *Trust Exhibit 22* at XV-XXVII. Based on these findings, the 2009 WHO report recommends that noise levels at night should not exceed 40dB during the night "[f]or the primary prevention of subclinical adverse health effects." *Trust Exhibit 22* at XVIII. [3]

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[3] The 2009 WHO report updates an earlier report, *Night Noise Guidelines* in 2007(*Trust Exhibit 16)* issued by WHO, recommending sound levels during the nighttime at less than 30dBA during sleeping periods for children and below 32 dBA for adults. A still earlier version of these Guidelines, published in 1999 (*Trust Exhibit 17*), concluded that even then WHO believed that "low frequency noise ... can disturb rest and sleep at low sound levels" and that the *"evidence on low frequency noise is sufficiently strong to warrant immediate concern."* See pg xii, xiii and 53. [Emphasis added.] *See also*, the discussion of the WHO Guidelines and other literature in George Kamperman & Richard James, "The 'How To' Guide", *supra, Trust Exhibit 13,* , which recommends greater setbacks than DEP Chapter 375.10 based on the current state of scientific evidence on the health effects of low frequency sound. Nina Pierpont, M.D., PhD, in *Wind Turbine Syndrome, Trust Exhibit 15*, states at pg. 11 that "Kamperman and James have convinced me that single, one size fits all setback distances may not be protective and fair in all environments with all types of turbines. Even so, it is clear from this study and others that minimum

Further record support for the need to take seriously the potential health effects from wind turbines can be found in Dr. Christopher Henning, "Sleep Disturbance and Wind Turbine Noise" (June 2009) (*Trust Exhibit 18*) ("There can be no doubt that groups of industrial wind turbines ('wind farms') generate sufficient noise to disturb sleep and impair health of those living nearby."); L. Gillis, C. Krogh, & N. Kouwen, "Wind Vigilance for Ontario Communities" (September 2009), *Trust Exhibit 23* ("The number of people in Ontario reporting adverse health effects due to industrial wind turbines continues to rise. *** Researchers and victims have reported altered living conditions and ill health. Sleep disturbance is the most common complaint). Even those who advocate for the wind industry by downplaying the health effects of noise, admit that sleep disturbance occurs. Nina Pierpont, M.D., PhD, *Wind Turbine Syndrome* (2009), *Trust Exhibit 24* at 112-121.

The Final Order gives three grounds for ignoring the health issues raised by the Trust. Final Order at 9-12. First it relies on the comments of Dora Mills, Director of the Maine Center for Disease Control ("MCDC") that wind power noise does not produce adverse health effects. Final Order at 9-10. The DEP should not have relied upon the MCDC for the reasons set forth below, establishing the lack of credibility of the MCDC on this issue. MCDC's views are the product of a political agenda that has never acknowledged or objectively examined the noise issue from wind turbines. This is evidenced in part by the results of a Freedom of Access request to the DEP producing a series of e-mails between Dr. Dora Mills, Director of the MCDC, and various employees of DEP concerning the health effects of noise. These e-mails (referred to

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protective distances need to be "greater than 1-1.5 km ... at which there were severely affected subjects in this study b) greater than 1.6 km ... at which there were affected subject in Dr. Harry's UK study and c) and, in mountainous terrain, greater than 2-3.5 km ... at which there were symptomatic subjects in Professor Robyn Phipp's New Zealand Study." Dr. Pierpont's work was among those studies referenced at the MMA meeting resulting in the resolution described above.

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herein as the "FOAA Response") are attached hereto as *Trust Exhibit 21.*

The e-mail trail begins February 10, 2009, after MCDC Director Dora Mills, M.D. received a telephone call and an e-mail from a Dr. Albert Aniel of Rumford, Maine forwarding an open letter from the medical staff of the Rumford Hospital, together with links to articles, asking Dr. Mills for support for a moratorium on new permits for wind turbine projects until further research could be done on possible health effects of wind turbines. FOAA Response #1 and #12.

Dr. Mills had three immediate responses to this communication. One was to admit that she was not familiar with the issue ("this is a new topic to me", FOAA Response # 5 and #8), second she took an advocacy position against the health concerns (from the outset she was looking for help "to refute the claims made by the Rumford medical staff", FOAA Response # 5 and #8) and three, she looked to DEP Commissioner David Littell and others at DEP involved in reviewing wind turbine projects (Andrew Fisk, Mike Mullen, James Cassida) for assistance in refuting the health concerns of Dr. Aniel. FOAA Response # 11, # 15 ("[a]ttached is a vetted and edited version of your talking points on wind noise"), #s 16-30, #31, and #35-6. At the same time Dr. Mills sought to advocate *against* consideration of the public health concerns from wind turbine noise, she was concerned about the adequacy of DEP's noise regulations to address the specific issue of wind turbine noise. FOAA Response #s 5-6 and # 38. In addition, Dr. Mills' initial research revealed "two very recent articles from Canada proposing some ways to address unique features of wind turbine in measuring or setting standards for noise levels." FOAA Response #s 7-8. One of the Canadian articles she forwarded to Commissioner Littell identified low frequency noise ("LFN") concerns (the same concerns that the Trust has raised), including the statement that "[r]esidents who are impacted by LFN may suffer from sleep disturbances,

headaches, and in some cases chronic fatigue." FOAA Response # 7. Dr. Mills did not send these articles to Dr. Aniel (instead she sent him older articles questioning health issues from wind turbines FOAA Response #s 1-4), nor did she reference the very recent Canadian articles in a Q & A she began constructing for dealing with the press. FOAA Response #s 16-30.

As Dr. Mills frantically ("I started working on this very early (2 am) today, and have also been busy doing other things" FOAA Response # 11, #s 31-2) continued her research, she concluded that *"[t]here are no firm statements I could find from non-industry sources stating there are no adverse health effects from wind turbines...."* FOAA Response #s 11, 31. [Emphasis added]. She tells Commissioner Littell that she will not disclose this finding to the public, but warns the Commissioner that:

> [T]here may be room for improving the noise regulations to take into account wind farms. The last time these rules were updated appear to be 1989. Massachusetts has rules that take into account the change over ambient noise levels rather than a level cap [as used in the existing DEP Rules]. And, there are some proposals from Canada that take into account low frequency noise emissions.

FOAA Response # 11, 31. This warning was also not disclosed in the Q & A that Dr. Mills was developing. Instead she had her Q & A "vetted" and "edited" ( FOAA Response # 15) by Commissioner Littell and others at DEP involved in reviewing wind projects as an advocacy statement against consideration of health effects, giving links to dated articles on the subject supporting her advocacy position, including an outdated reference to the 1999 WHO "Guidelines for Community Noise" (suggesting nighttime noise limits of 45 dBA), apparently unaware that in 2007 WHO replaced these with "Night Noise Guidelines" of 30 dBA sleep time limits for children and 32 dBA sleep time limits for adults, below what is currently set by the dated DEP noise regulations. See *Trust Exhibit 16* previously filed by the Trust.

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And there is more in these emails. They recount that Dr. Aniel took his public health concerns about the need for a moratorium on new wind projects to the Maine Medical Association for support. FOAA Response # 40-1. In the context of this development, Dr. Mills asked Commissioner Littell for help on February 25, 2009, in refuting this effort because she was having

> a hard time addressing the DEP regulations on noise levels, essentially being 45 dbl (sic.) at the property line in rural areas, and the fact that these regulations did not protect residents in Mars Hill who are perceived by some to be living too close from an annoyance perspective from the wind farm there.

FOAA Response # 40. In the very next e-mail , Dr. Mills anxiously asks Andrew Fisk for updates on "how the DEP is addressing noise issues" because "[t]his issue seems to be gaining traction." FOAA Response #40.

The e-mail trail further reveals that Dr. Mills talked at length with Dr. Peter Rabinowitz, Associate Professor of Medicine at the Yale School of Medicine and Director of Clinical Services in Occupational and Environmental Medicine at Yale, who told Dr. Mills that *"the increasing expressed concerns about noise and health effects related to wind turbines, especially as they relate to low frequency noise, needs to be addressed with some non-biased research."* FOAA Response #48. [Emphasis added.] Near the end of the e-mail trail there is a joint letter from Dr. Nissenbaum and Dr. Aniel to Dr. Mills (doctor to doctor) with an impassioned plea for the MCDC to take the health issues of wind power noise seriously, especially in light of the suffering of residents of Mars Hill, which Dr. Mills passes on to Commissioner Littell with a note that she will respond but give the Commissioner input in the response. FOAA Response #s 53-54. No response was actually sent by MCDC. This is the background to the "Wind Turbine

Neuro-Acoustical Issues" dated June 2009 by Dr. Mills that the Draft Order relies upon.

Dr. Mills report does not take into account, except for a fleeting reference to a dated document (which even then reflected concerns about sleep disturbance at dBA levels above 30), the important work that WHO has done in the field related to the health issues from nighttime noise.

Based on the foregoing, the Final Order's reliance on the sweeping denials of MCDC for the total absence of any health issues from the noise to be generated from the Oakfield Wind Project is unwarranted and cannot be viewed as substantial evidence in support of the proposed issuance of the permit requested without consideration of health effects.

Second, the DEP relied upon wind industry position papers denying that health issues with respect to wind power projects. Final Order at 10. These position papers are biased and ignore credible reports to the contrary. The reports relied upon -- Exponet, Inc., "Evaluation of the Scientific Literature on the Health Effects Associated with Wind Turbine and Low Frequency Sound," and the AWEA and CWEA's, "Wind Turbine Sound and Health Effects are industry advocacy pieces, with participants handpicked by the industry based on their known biases. Neither report is peer reviewed or reviewed at all externally, and there is no original research contained in either report. Most significantly, neither report specifically denies (or even addresses) the WHO *Night Noise Guidelines* or other evidence of recent consensus of the dangers of sleep disorders, choosing instead to focus on annoyance and visceral vibratory vestibular disturbance and other related issues. Moreover, both reports acknowledge sleep disturbance. *See pg.* 39-40 of the Exponent Report and pgs. 3-12 (section 3.3), 3-16 (section 3.4.2) and pg. 4-3 (section 4.1.2) of the AWEA and CWEA report.

In a report issued just a few weeks ago, January 11, 2010, by the Society for Wind

Vigilance, titled, "An Analysis of the American/Canadian Wind Energy Association sponsored Wind Turbine Sound and Health Effects, An Expert Panel Review, December 2009," *Trust Exhibit 25*, the authors point out that the AWEA and CWEA report relied upon in the Draft order is neither authoritative nor convincing, that it is riddled with industry bias, contains unsupported statements and conclusions, ignores authoritative research, including the 2009 WHO report, and is otherwise flawed. Id., Executive Summary at 2, 5. The Society for Wind Vigilance concludes that:

> There is no medical doubt that audible noise such as emitted by modern upwind industrial wind turbines sited close to human residences cause significant health effects. These effects are mediated through sleep disturbance, physiological stress and psychological distress. This is settled medical science.

Id., Executive Summary at 2.

Third, the DEP disregards the most current views of WHO on nighttime noise standards to avoid health effect on the ground that it is "difficult to compare" the WHO Guidelines with the standards of Chapter 375 of the DEP regulations. Final Order at 12. This is in error. The WHO Guidelines can be compared with Rule 375 by a simple noise propagation calculation of the very same type used in making sound propagation predictions such as the *Sound Assessment* made in this case.

Based on the foregoing, it is clear that the existing noise regulations in Chapter 375, Section 10 allowing nighttime noise at protected locations of up to 45 dBA, at least as modeled in the RSE *Sound Level Assessment,* will not be sufficient to protect the residents of Oakfield from the adverse health effects of the proposed Project. At a minimum, the BEP needs to hold a hearing to further examine the health risks associated with this Project to get a prospective other

than biased wind industry advocates.

3. Noise Easements:

This Project will violate the DEP Noise Regulations according to the Applicant's own sound modeling because it will exceed 45 dBA at night at 10 protected locations (D-1 to D-10) identified in RSE's *Sound Level Assessment*. The Applicant claims exemption from noise limitations at these locations based on easements it acquired from landowners. If those easements are not valid, the Project should not be allowed to be constructed or operated. The easements are valid only if proper disclosures were made to the landowners warning them of potential health effects from the project that they are facilitating by granting easements. Therefore, DEP has the duty to require the Applicant to provide assurances as part of the application that there were proper disclosures made when acquiring the easements that are necessary for the lawful operation of the project. Not to do so is an abdication of the DEP's essential responsibilities. DEP is supposed to protect the public from harm, including harm from noise, in projects subject to its approval. Given the fact that the Applicant for the Oakfield Wind Project flatly denies that there are any health risks associated with the project, it can be assumed on this record that no disclosures at all were made of the health risks identified in these comments. Certainly no disclosures of adverse health risks are identified in the easements included in Section 5 of the application. What makes matter even worse is that the easements contain *in terrorem* clauses which state that if a landowner granting an easement ever files suit against Oakfield Wind LLC relating to the easement, that landowner may end up being obligated to pay the attorneys fees of Oakfield Wind. So, if, as we predict, this Project causes serious health effects to those exposed to noise in excess of the DEP Noise Regulations, which happened in Mars Hill and appears to be the case in Vinalhaven and is predicted in this case by Dr.

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Nissenbaum, the landowners will be intimidated not to challenge the legality of the easements they signed, regardless of the non-disclosures. It is unconscionable for the DEP to turn its back on the responsibilities in this situation.

The Final Order claims to lack "legal jurisdiction" to determine whether the noise easements violate deed restrictions. Final Order at 11-12. This is error because the DEP has the power to deny a project application whenever the applicant does not demonstrate sufficient right, title or interest in property necessary for the operation of the project. The Final Order also states it is beyond the scope of its review to determine whether adequate disclosure was made by the applicant for the 10 landowners who granted noise easements necessary for the project to operate within the requirements of the DEP Noise Regulations, Section 375, Section 10. Final Order at 12. This is also in error for the reasons stated above.

Based on the foregoing, the Trust urges the BEP to void the Final Order approving the Project the Application or at the very least hold a hearing on wind power noise, including the health effects of wind power noise, and consolidate that hearing with that requested by the aggrieved parties in the Record Hill case. In addition, the Trust urges DEP to require the Applicant to disclose what it represented to the 10 land owners who gave a lease or easements about the effects of the Project on their health. Those easements and the lease should not be allowed as exemptions to the DEP noise regulations unless an adequate health disclosure was made.

4. Regulation Chapter 375, Sec. 10.

The DEP's Noise Regulations, at least as interpreted by DEP, fail to adequately protect the health and welfare of residents who are living close enough to windpower projects to be affected by noise. The regulations were promulgated over 20 years ago and were not designed to

protect against the impacts of windpower projects. They do not require proper modeling, as explained above, they set debacle levels too high, they do not take into account low and infra frequency noise and they do not take into account the health effects, including sleep disturbance and health issues secondary to sleep disturbance. These regulations also do not set standards for obtaining noise easements. Nor do they adequately provide for post- construction compliance monitoring. The BEP in these proceedings should declare that Rule 375, Section 10 is no longer considered adequate for permitting purposes and should that this project should be reviewed without regard to those regulations.

C. Objections to the Final Order as to Visual Impact

The Trust's property adjoins the Project boundaries and will be negatively impacted by it visually. Initially, no visual impact analysis was done in relation to Pleasant Lake (much of the lakeshore of which is owned by the Trust) based on the mistaken belief that Pleasant Lake was not a "scenic resource of state or national significance" as defined by 35-A M.R.S.A. §3451.9, enacted by Chapter 661, 123rd Legis. Second Reg. Sess. (the "Wind Power Act"). When the mistake was discovered, the Applicant submitted a Visual Impact Assessment Addendum dated June 30, 2009, addressing how the Project will impact visually Pleasant Lake. This assessment is incomplete, inaccurate, and inconsistent and does not fairly depict the extent of the visual impact of the Project on Pleasant Lake and does not give DEP adequate information to properly evaluate the visual impact.

The deficiencies of the Assessment Addendum has been addressed in a letter to the DEP by Philip Powers, one of the Trustee's trustees and beneficiaries dated September 10, 2009, based on Mr. Power's lifetime familiarity with Pleasant Lake. *Trust Exhibit 31*, which is part of the administrative record but not given an exhibit number and therefore attached to this

document. In addition, the Trust requested the Assessment Addendum to be reviewed by Jean Vissering, a landscape architect with a special expertise in wind power visual impact assessments. Ms. Vissering's Report, dated September 21, 2009, is attached hereto as *Trust Exhibit 1* and her resume is attached to this letter as Trust *Exhibit 2*. Ms. Vissering concludes that the material submitted by the Applicant is insufficient to properly evaluate the visual impact of the Project on Pleasant Lake and raises several questions about the validity of what was submitted.

The Final Draft Order acknowledges that Pleasant Lake borders the Oakfield Wind Project, that Pleasant Lake is listed in the Maine Wildlands Lake Assessment as having significant scenic resources, and that there were extensive concerns by local property owners about the adverse effect of the Oakfield Wind Project on the scenic value of the lake. Final Order at 17-19. Yet it dismisses these concerns – not even exploring ways that the adverse impact of the wind project could be mitigated by relocation of turbines - based on a boat ride and an unexplained "review" of all the issues. The purposes of statutory protection of scenic views of statewide significance are rendered meaningless if those views can be so casually degraded. Further specific comments on the rationale of the Draft Order (incorporated into the Final Order) on this issue are contained in the January 6, 2010 Memorandum of Philip Powers, *Trust Exhibit 29.*

D. Objections to the Final Order as to the Decommissioning Plan.

The Application, in Section 24, proposes to begin funding a decommissioning fund in an amount of $50,000 a year and then to evaluate the adequacy of the fund after 15 years.. This does not comply with the Wind Power Act, Section B-13. This provision requires "Decommissioning plans [to] include[ ] demonstration of *current and future financial capacity that would be*

***unaffected by the applicant's future financial condition*** to fully fund any necessary costs commensurate with the project's scale, location and other relevant considerations, including, but not limited to, those associated with site restoration and turbine removal." [Emphasis added.] This statutory requirement was recommended in a paper submitted to the Governor's Task Force on October 30, 2007 (See "Meeting Summaries" at the Governor's Task Force Website) titled "State Siting Process For Grid Scale Wind Energy Facilities: Issues and Options." Issue A-6, states: "Because a wind power project ... has real and potential effects on the natural environment, it is important to ensure that the project facility is properly decommissioned ...." The paper then proposed the following option:

> Develop a standardized state decommissioning policy, to be implemented regarding wind power, under which, as a condition of project approval, the applicant would establish a fully funded decommissioning account ... that would be unaffected by the applicant's future financial condition. [Emphasis added.]

The Wind Power Act, like the proposal that the Wind Power Act adopted, thus requires a *pre-funded* decommissioning fund, not one established in the future that might be "affected by the applicant's future financial condition." By definition, any funding requirement in the future would be affected by the applicant's future financial condition. Not only is the requirement for pre-funding obvious from the wording of the Wind Power Act, but it makes eminent sense, as evidenced by the Decision of April 16, 2009 by the Vermont Public Service Board *In the Matter of Amended Petition of Deerfield Wind, LLC* at pgs 91-92, see *Trust Exhibit 19,* requiring a Letter of Credit for the estimated decommissioning fund to be posted prior to construction.

The Deerfield decision also disallowed a deduction for scrap metal salvaged as part of the decommissioning because "[s]crap value is vulnerable to market place volatility and thus should

not be considered a viable funding source for decommissioning the Project." *Id.* at 91. The Applicant in this case deducts an enormous amount for scrap metal, $17.5 million against total decommissioning cost of $18.4 million. The Applicant should not be allowed any deduction for scrap and certainly not scrap at 95% of the cost. In addition, the Applicant should be required disclose how the $17.5 million for estimated for scrap value was calculated.

Based on the objections of the Trust, the DEP required the Applicant to reassess the adequacy of the decommissioning fund, including the estimated salvage value, at the end of the 7th year. Final Order at 40. This is an improvement but it still is error. The Applicant's financial assurances, even as amended by the Final Order, will be worthless if the project fails economically prior to the time when the adequacy of the fund is required to be reassessed after 7 years. This is not a remote possibility. See *Trust Exhibit 30,* "First Wind Holdings, Inc. – Strategic Review", especially at page 6-7 reporting that "First Wind has generated substantial net losses and negative cash flows from operating activities since its exception" and that it "anticipates continuing losses with the development and construction of new wind energy projects...." and that, according to its accountants, there are *"substantial doubts about the ability of the company to continue as a going concern."* [Emphasis added.] It is arbitrary and capricious for the Final Order to allow a developer in this financial condition to defer giving financial assurances of its ability to fund a multi- million dollar decommissioning project..

E. Objections as to Affect on Property Values

The last ground for the appeal of the Trust is that the Project will reduce the property value of Trust property without compensation. A recently published study, *Wind Turbine Impact Study*, by Appraisal Group One (September 9, 2009), *Trust Exhibit 20*, shows that the value of property bordering a wind project reduces the value of unimproved land by 43%. The

Applicant's private project should not be allowed at such a dramatic impact on bordering property without compensation.

## IV. RELIEF REQUESTED

The relief requested by the Trust is for the Board to void the Final Order and send it back to the DEP to require that the Applicant demonstrate that the Project shall comply with the requirements for financial capacity, noise, visual impact, decommissioning and the absence of undue negative impact of the value of the Trust's property as set forth in this appeal, failing which the application for the Project should be denied. In addition, on the issue of noise, the Trust requests a public hearing for the reasons set forth below and for that public hearing to be consolidated with the hearing requested in the Record Hill appeal. The Trust further request that the BEP declare that Rule 375, Section 19 is inadequate for the protection against the noise impacts from, windpower projects and it should review the impacts of noise for this project without the limitations of these regulations.

## V. REQUEST FOR A PUBLIC HEARIING.

The Trust requests a public hearing on the noise issue. It has demonstrated that there is at least "credible conflicting technical information regarding a licensing criteria," namely noise, as required by Rule 2, Section 7.B. The DEP states throughout the discussion on noise in the Final Order that it disagrees with the evidence of the Trust and it finds its own consultant and the Applicant to be more credible. Be that as it may, these findings do not mean there is no credible, technical and medical evidence that disagrees. What it means is that this is the occasion when a hearing must be held. Just to take one example, the DEP dismisses the Trust's concerns about health effects based on the views of Dora Mills of MCDC that there are no adverse health effects. But the Maine Medical Association does not agree with her objections to the resolution urging

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the DEP to take the health effects of wind power noise seriously. How can the Board not grant a hearing on that issue? If the Board can assume jurisdiction and hold a public hearing on an application for *a dock*, see *Hannum v. Board of Environmental Protection*, 2006 ME 51, 898 A.2d 392, how can it refuse a public hearing on a serious matter of public health for a major wind power generating facility? It would be irresponsible not to. A Summary of the Proposed Testimony of the Trust is attached as *Exhibit A* (for Dr. Nissenbaum) and *Exhibit B* to this document (for Richard James).

Respectfully submitted.

Dated: February 22, 2010

Rufus E. Brown, Esq.
BROWN & BURKE
85 Exchange Street - P.O. Box 7530
Portland, ME 04112-7530
(207) 775-0265
rbrown@brownburkelaw.com

*Attorney for the Martha A. Powers Trust*

STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

In Re:

| | | |
|---|---|---|
| EVERGREEN WIND POWER II, LLC | ) | |
| Oakfield Aroostook County | ) | **PROPOSED TESTIMONY OF** |
| OAKFIELD WIND PROJECT | ) | **MICHAEL NISSENBAUM, M.D.** |
| L-24572-24-A-N (approval) | ) | |
| L-24572-TF-B-N (approval) | ) | |

At the public hearing requested, Michael Nissenbaum will give testimony consistent with his Affidavits in the administrative record as Trust Exhibit 14 and Trust Exhibit 26. His qualifications are attached to Trust Exhibit 14. He will also give testimony in rebuttal to any witnesses called by the Applicant on the subject of the health effects of wind power generated noise.

Respectfully submitted.

Dated: February 22, 2010

Rufus E. Brown, Esq.
BROWN & BURKE
85 Exchange Street - P.O. Box 7530
Portland, ME 04112-7530
(207) 775-0265
*rbrown@brownburkelaw.com*

*Attorney for the Martha A. Powers Trust*

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STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

In Re:

| | | |
|---|---|---|
| EVERGREEN WIND POWER II, LLC | ) | |
| Oakfield Aroostook County | ) | **PROPOSED TESTIMONY OF** |
| OAKFIELD WIND PROJECT | ) | **RICHARD JAMES** |
| L-24572-24-A-N (approval) | ) | |
| L-24572-TF-B-N (approval) | ) | |

At the public hearing requested, Richard James will give testimony consistent with reports made part of the administrative record, including testimony on the following subjects:

1. **The Limitations of the Models used in the Record Hill Application to Estimate Operational Noise a Failure to Use Line Source Calculations.**

He will testify to his understanding of the uses and limitations of computer models including but not limited to the question of whether the model should use "line-source" or "point-source" calculation methods for the Record Hill Wind Project. This will advance the arguments raised in his earlier testimony. His testimony will be based on ISO 9613-2 and his own modeling experience since the 1970's in using these methods for predicting sound propagation into communities from industrial noise sources. He will support this discussion by reference to recent research and papers written by other experienced users of commercial implementations of the ISO 9613-2 methods such as Cadna/A which was used for the Record Hill Noise Study. He will also testify to the limitations of these methods and how they impact the results of the sound propagation model used by Record Hill Wind, LLC to predict the sound levels in the community of the wind turbine project. He will use the ISO 9613-2 standard to identify limitations to the model's accuracy when used to predict wind turbine sound propagation and discuss the tolerances that must be included in the predicted sound levels to account for these limitations or the conditions that lead to higher sound emissions not addressed and in the Record Hill study. He will also testify to his understanding of the uses and limitations of the IEC 6400-11 standard and the sound power data derived from it for the wind turbine manufacturer and how that also adds to the uncertainty of the predicated sound levels from Record Hill Wind, LLC's model.

2. **The Failure to Apply the SDR 5% Penalty.**

He will testify to the proper application of the rules and guidelines of the MDEP regulating noise as interpreted by an acoustical engineer with over 35 years of experience addressing community noise for his clients, both industrial and governments, in the US and other countries. This will address MDEP's failure to apply the SDR 5% penalty in the Record Hill

Application and include testimony on the documents and other information used by the MDEP in reaching its decision not to apply this penalty. It will include his experience in measuring SDR's exceeding the thresholds set by the MDEP at other wind turbine utility where complaints about this type of noise has led to formal complaints and threats of litigation.

**3. Failure to Consider the Health Effects of Night Time Noise.**

He will testify to research he applies to questions of whether nighttime sounds are sufficient to cause adverse health effects. This will include widely accepted guidelines such as those published in 2007 by the World Health Organization's Nighttime Noise Guidelines to which he will testify that the sound levels of the amplitude projected for the residential properties at Roxbury pond are classified by WHO as health risks. He will also testify on his understanding of adverse health effects identified in more recent studies specific to wind turbine noise showing a link between wind turbine sound emissions and adverse health effects on people's organs of balance and other sensitive receptors based on his work with the researchers conducting those studies and his own experience in working with people experiencing those symptoms.

**4. The Flaws in the Stetson Wind Project Operations Compliance Sound Level Study**

He will testify that the Stetson Wind Project Operations Compliance Sound Level Study (the "Stetson Report") is flawed and provides no support for the claim that it validates the noise modeling of Resource Systems Engineering ("RSE"), the entity that prepared the Sound Level Assessment for the Record Hill Project. Among the reasons that it is flawed as a validation of RSE modeling are the following: (1) it is not a report by an independent expert; (2) there was no testing protocol established in advance of the field work to guide the field work or to measure the legitimacy of the findings of the field work; (3) the field testing took place at different sites that do not correspond to the pre-construction modeling sites; (4) only one field testing site was downwind of the turbines, even though downwind represents the condition most likely to result in the highest sound levels; (5) in contrast to the Mars Hill four quarter post- construction noise study, the testing for Stetson took place over a period of less than 24 hours; (6) the Stetson Report did not field test under the same conditions assumed in the pre-construction modeling; (7) there are numerous anomalies in the field testing, casting serious doubt about the Report, including results showing an increase in sound levels at a time when wind turbines were declining in power output and results showing variations in sound levels where constant sound power was presumed; (8) the modeling purported to be validated did not use line source sound propagation although the turbines are arranged in a line along the ridge top; and (9) there was no test data reported or filed addressing concerns about low frequency sound.

**5. Testimony in Rebuttal to Cross Examination of Witnesses Presented by the Applicant.**

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## QUALIFICATIONS OF RICHARD JAMES

Mr. Richard James is the Principal Consultant for E-Coustic Solutions, of Okemos, Michigan. Mr. James is an acoustical engineer with over 35 years of experience addressing community noise for new and existing industrial and commercial facilities. He is a Full Member of the Institute of Noise Control Engineers. He first joined the Institute in 1973.

Mr. James was the former President of James, Anderson & Associates, Inc., an acoustical consulting firm whose clients included Fortune 100 companies for 23 years. The company grew from the original two partners to a staff of over 40 acoustical engineers, industrial hygienists and technicians. As President, and Principal Consultant, he and his staff developed partnerships with companies such as: General Motors, Ford, Chrysler, Goodyear Rubber Company, Anheuser Busch and Deer and Company, as well as many smaller firms. Services included consulting on community noise issues for existing plants where neighbor's complaints have led to governmental actions against the firms or site selection and planning for new facilities to determine compatibility of the proposed facility and the existing neighborhood.

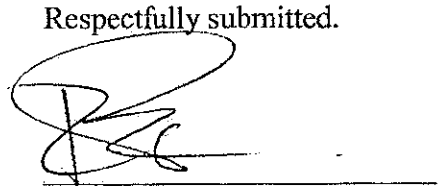
Mr. James has personally conducted studies throughout the U.S. and Europe for his firm's clients. One of these jobs involved working on behalf of GM over a ten year period to change the Illinois EPA Noise Standard to require a one (1) hour Leq measurement to assess a possible violation of the IEPA Noise Section 901 standards (see Section 900.103(b)). In 2006, Mr. James and his partner, Robert Anderson, closed James, Anderson and Associates, Inc. Mr. James now provides his consulting services through his new firm: E-Coustic Solutions.

In addition to his consulting interests, Mr. James has served as Adjunct to Michigan State University's Department of Communicative and Disorders for 20 years. Until 2006, Mr. James was a voting member of the American National Standards Institute's S12 Committee with oversight responsibilities for acoustical test methods and procedures used to standardize the work of acousticians and noise control engineers for measuring sound and assessing Land-Use-Compatibility.

Since 2006, when the first major wind turbine projects were announced in Michigan, Mr. James has become more involved with this relatively new industrial noise source. His work includes developing siting criteria for county and township governments, conducting acoustical tests of operating wind turbines and pre-construction background sound studies, providing testimony at zoning hearings and public presentations concentrating mainly on Michigan, Ohio, Wisconsin, Illinois , West Virginia, Maine, and Pennsylvania. He also has clients in Oregon, Washington, the U.K. and New Zealand.

Respectfully submitted.

Dated: February 22, 2010



Rufus E. Brown, Esq.
BROWN & BURKE
85 Exchange Street - P.O. Box 7530
Portland, ME 04112-7530
(207) 775-0265
rbrown@brownburkelaw.com

*Attorney for the Martha A. Powers Trust*